

L:G 3 NO
044 [COPY]

(12) **UK Patent Application** (19) **GB** (11) **2 246 951** (13) **A**

(43) Date of A publication 19.02.1992

(21) Application No 9018129.8

(22) Date of filing 17.08.1990

(71) Applicant
Chin-Fu Chung
No. 18 Hsin, Hsing Road, Tainan, Taiwan

(72) Inventor
Chin-Fu Chung

(74) Agent and/or Address for Service
Langner Parry
High Holborn House, 52-54 High Holborn, London,
WC1V 6RR, United Kingdom

(51) INT CL⁵
B60B 33/06

(52) UK CL (Edition K)
A4L LDF LU22B LU35D L305
U1S S1061 S1844

(56) Documents cited
GB 1581523 A GB 1497227 A GB 1093535 A
GB 0215183 A EP 0153832 A

(58) Field of search
UK CL (Edition K) A4L LAKC LDF
INT CL⁵ B60B 33/06

(54) **Retractable castor**

(57) A castor, which can efficiently absorb shock comprises a ball wheel (7) which can be alternatively received in or protruding beyond a cup-like shield (3) for positioning or moving. The castor comprises a sleeve (1) which is secured to a hoop of the frame of a baby-walker for receiving a spring (5) and a central shaft (4) to which the ball wheel is attached. The sleeve comprises a Z-shaped track on its wall surface for the sliding and positioning therein of a lateral guide (42) which is inserted therethrough and secured to the central shaft.

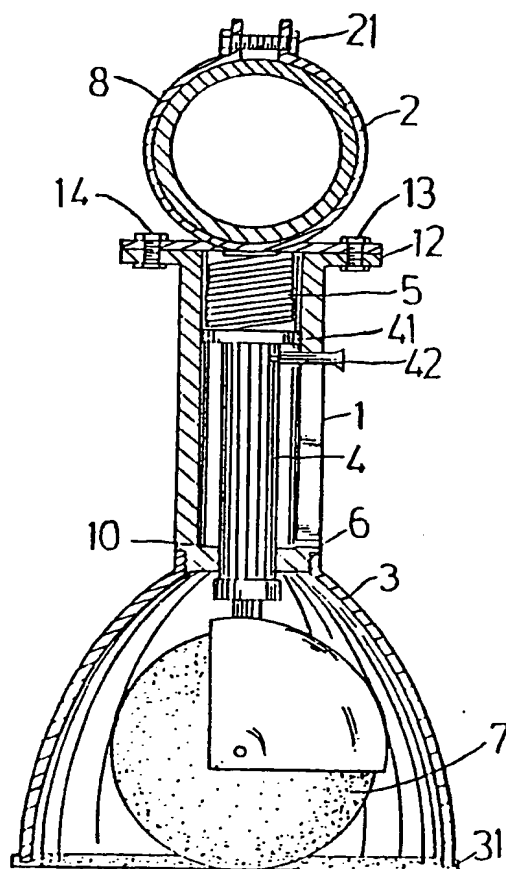


FIG 1

GB 2 246 951 A

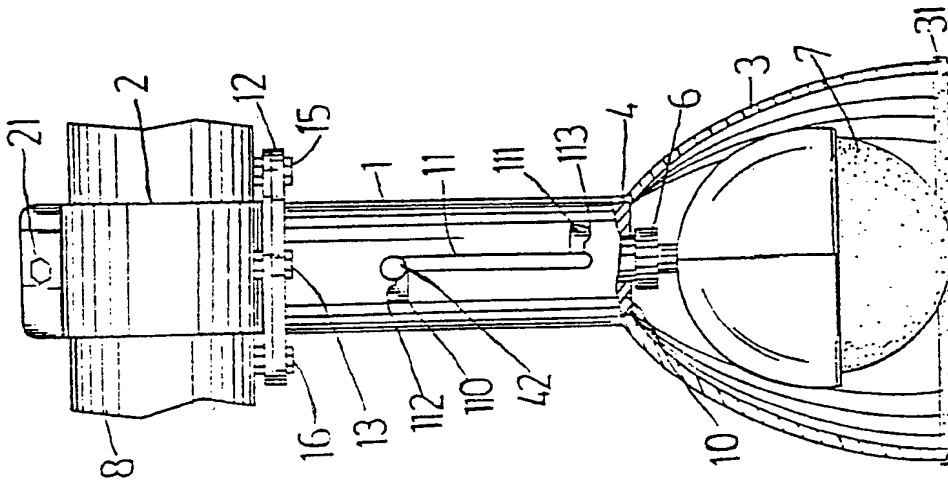


FIG 2

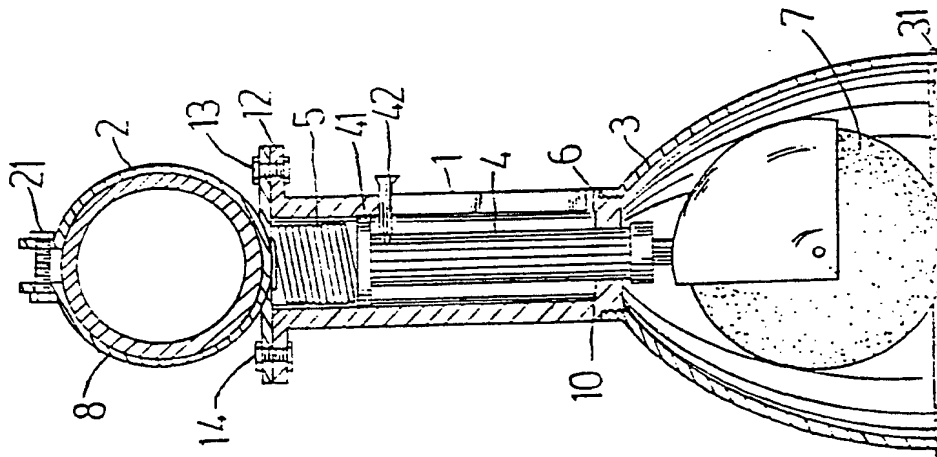
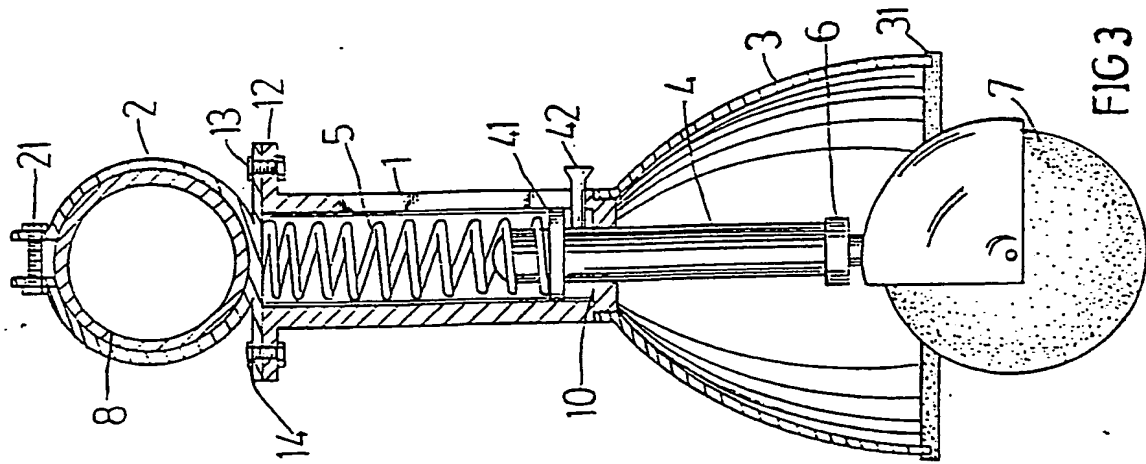
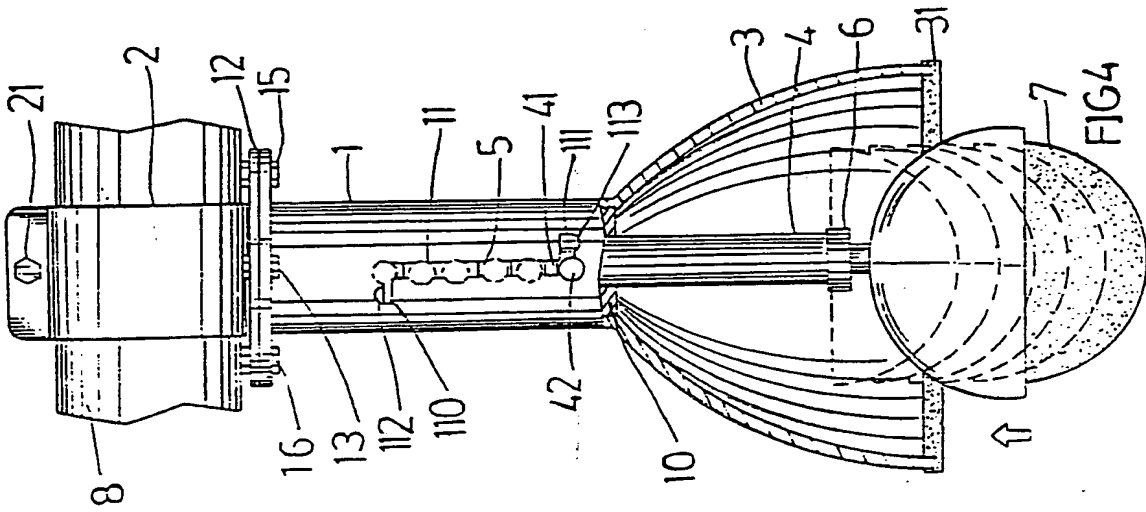


FIG 1



2246511

CASTORS

The present invention relates to
castors and more particularly to a castor for baby-walker
5 and other movable objects.

Regular baby-walkers are generally fastened with
fixed rollers or castors for moving. The rigid structure of
the rollers or castors can not provide any shock absorbing
effect. Therefore, a baby may be easily hurt while learning
10 to walk by means of a baby-walker.

An object of the present invention is to
provide a castor for baby-walker and other movable objects
which includes a suspension system to absorb shock so that
15 the ball wheel thereof can be smoothly and stably move along
the surface of the ground.

Another object of the present invention is to
provide a castor which includes a spring specially designed
to permit the ball wheel thereof to be automatically received
20 inside a cup-like shield so that the movable objects can
stand firmly on the ground when a baby sits down, and to
permit the ball wheel thereof to be automatically protruding

beyond for rolling so that the movable objects can be moved along the ground when a baby stands up.

Still another object of the present invention is to provide such a castor for baby-walker, in which the ball wheel can be fixedly received in a cup-like shield permitting the positioning of a baby-walker on the ground, or fixedly set to protrude beyond a cup-like shield permitting the moving of a baby-walker on the ground.

An embodiment of the present invention will now be described by way of example with reference to the accompanying drawings in which:-

Fig. 1 is a sectional front view of a castor embodying the present invention;

Fig. 2 is a sectional right side view of the castor of Fig. 1

Fig. 3 is a sectional front view of the castor of Fig. 1; and

Fig. 4 is a partly right side sectional view, illustrating the operation of the present invention.

Referring to the various drawings attached

herewith, a detailed description of the structural features of "a castor" of the present invention is as follows:-

Referring to Figs. 1 and 2, a castor in accordance with the present invention is generally comprised of a vertical sleeve 1, a circular steel hoop 2, a cup-like shield 3, a central shaft 4, a spring 5, an universal knuckle 6 and a ball wheel 7. The sleeve 1 comprises a substantially Z-shaped track 11 which includes an upper, leftward branch track 110 and a lower, rightward branch track 111, an internal flange 10 in the bottom for supporting the central shaft 4, and an external flange 12 on the top for securing to a bottom plate 20 of the circular hoop 2 by means of four screws 13, 14, 15 and 16. The circular hoop 2 is fixedly secured to the frame 8 of a baby-walker by means of a lock screw 21. The cup-like shield 3 is secured to the bottom end of the sleeve 1 by means of screw joint permitting the central shaft 4 to move vertically therethrough. A rubber cushion 31 is mounted on the circular bottom edge of the cup-like shield 3 to strengthen its friction against the ground. The spring 5 and the central shaft 4 are set in the boring bore of the sleeve 1 permitting the top end of the

spring 5 to stop against the bottom surface of the bottom plate 20 of the circular steel hoop 2 and the bottom end of the spring 5 to stop against the collar 41 of the central shaft 4. The central shaft 4 comprises a bolt hole on its upper end beneath its collar 41 for the fastening therein of a lateral guide 42 which is inserted through the Z-shaped track 11 of the sleeve with its one end exposed out of the sleeve 1 to control the moving range of the central shaft 4 within the Z-shaped track 11. The central shaft 4 partly extends out of the sleeve 1 inside the cup-like shield 3 for the connection thereto of the universal knuckle 6 and the ball wheel 7.

The operation of the present invention is outlined hereinafter. When a baby is sitting in a baby-walker according to the present invention, the downward pressure of the body weight of the baby forces the ball wheel 7 of the castor to retreat in the cup-like shield 3 permitting the rubber cushion 31 of the cup-like shield 3 to contact the ground. Under this condition, the lateral guide 42 is moved to the upper limit position in the Z-shaped track 11 and the spring 5 is squeezed to compress on the central shaft 4 (see Figs. 1 and 2). As soon as the baby stands up, the central

shaft 4 of the castor of the baby-walker is immediately forced by the spring 5 to extend downward permitting the ball wheel 7 to protrude beyond the cup-like shield 3 (see Figs. 3 and 4). Under this condition, the lateral guide 42 is moved
5 to the lower limit position in the Z-shaped track. By means of the effect of the spring 5, the ball wheel 7 is permitted to float within the range of the Z-shaped track 11. Therefore, the ball wheel 7 can be smoothly moving along the surface of the ground while the baby is walking in the baby-walker, and the spring 5 serves as a suspension system to
10 reduce the vibration of the baby-walker. When the baby is sitting down, the friction effect of the rubber cushion 31 stabilizes the positioning of the baby-walker on the ground.

The lateral guide 42 may be moved upward to set in
15 the upper circular hole 112 of the upper branch track 110 so that the ball wheel 7 can be constantly and completely received inside the cup-like shield 3, or the lateral guide 42 may be moved downward to set in the lower circular hole 113 of the lower branch track 111 to let the ball wheel 7
20 constantly protrude beyond the cup-like shield 3 so that the baby-walker can be freely moved to steer. The arrangement of the upper circular hole 112 and the lower circular hole

113 is for the positioning of the lateral guide 42 in the upper branch track 110 or lower branch track 111 to protect the lateral guide 42 from breaking away.

5 As indicated above, the present invention is to provide such a design of castor which is practical for use in a baby-walker to ensure maximum safety. The present invention can also be used as a castor for chairs, blocks, ladders or some other moving objects.

10 As foregoing statement, the present invention may be variously embodied. Recognizing various modification been apparent, the scope herein shall be deemed as defined in the claims set forth hereinafter.

CLAIMS:

1. A castor, including a sleeve securable to a frame of a babywalker and having guide means on its wall surface;
a shield secured to a bottom end of the said sleeve for covering the castor wheel at least in part at the said bottom end;
a central shaft moveable within the sleeve and extendable outwardly from the bottom end of the sleeve;
a lateral guide means at one or more positions along the length of the sleeve;
biasing means within the sleeve for biasing the central shaft towards the bottom end of the sleeve;
a ball wheel secured to the bottom end of said central shaft by a universal knuckle.
2. A castor as claimed in claim 1 wherein said guide means comprising a Z-shaped slot in the sleeve for locking the castor wheel internally or externally of the said shield.
3. A castor as claimed in claim 1 or 2, wherein laterally extending portions of said guide slot each include curved recesses for retaining said lateral guide therein.
4. A castor as claimed in claim 3, wherein an axially extending portion of the guide slot includes a plurality of recesses along therealong for receiving the lateral guide therein to set the castor wheel in a number of selectable positions relative to the shield.

5. A castor, including a sleeve secured to a circular hoop of the frame of a baby-walker by means of screws, having a Z-shaped track on its wall surface and an inner flange on its bottom end;

a cup-like shield secured to the bottom end of said sleeve;

a central shaft comprising a collar on its upper end and being moveably fastened in said sleeve with its collar stopped against said inner flange;

a lateral guide inserted through said Z-shaped track to secure to said central shaft permitting its one end to protrude beyond said sleeve;

a spring received in said sleeve with its one end stopped against the bottom surface of said circular hoop and its other end stopped against said collar; and

a ball wheel secured to the bottom end of said central shaft by means of a universal knuckle.

6. A castor substantially as hereinafter described with reference to, and illustrated in, the accompanying drawings.

THIS PAGE BLANK (USPTO)